AA

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STATE OF VERMONT
ENVIRONMENTAL BOARD
MONTPELIER. VERMONT 05602
802-828-3309

DATE: June 2, 1993

TO: Parties

FROM: Stephanie J. Kaplan, General Counsel

RE: L&S Associates, #2W0434-EB

Enclosed is the Environmental Board's decision concerning the proposed C&S warehouse in Brattleboro. The Board has issued a permit with conditions. The Board's decision is summarized as follows:

Criterion 1 (air pollution). The proposed project will not create undue air pollution. However, the Board is concerned about the potential health effects of diesel emissions from the trucks and idling refrigerated units. In order to confirm the Applicant's projections concerning the effect of the project on air quality, the Board has imposed a permit condition that requires additional air monitoring and will keep in place the District Commission's condition that retains jurisdiction over air pollution in order to ensure that undue air pollution will not occur.

Criterion 5 (traffic safety and congestion). The proposed project will create unsafe conditions and unreasonable congestion on Route 5 (Putney Road) and at the Putney Road/Route 9/ Interstate-91 access road intersection during the hours of high traffic volume. The Board has therefore imposed a condition limiting the number of trucks that may leave the facility between the hours of 8:00 to 9:00 a.m. and 12:00 noon and 6:00 p.m. to 12 per hour. The Board has also imposed a condition that retains jurisdiction over traffic with the District Commission to ensure that unsafe conditions and unreasonable congestion will not occur.

Criterion 9(K)(impact on public facilities). The project as proposed will materially jeopardize or interfere with the function, safety, and efficiency, and the public's use and enjoyment of, Putney Road during the hours of high traffic volume. However, with the condition that limits the number of trucks that may leave the facility during the hours of high traffic volume and the condition that retains jurisdiction over traffic with the District Commission, the Board concludes that the project complies with Criterion 9(K). Because of the lack of information about the effect of the project on Route 9 west and the public investments on Route 9 west, the Board has imposed a permit condition limiting the number of C&S generated trucks on Route 9 west to an average of 120 per day.

Any questions about this decision should be directed to me. I can be reached at 828-3309.

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VERMONT ENVIRONMENTAL BOARD
10 V.S.A. Chapter 151

Re: L&S Associates
Land Use Permit #2W0434-8-EB

FINDINGS OF FACT, CONCLUSIONS OF LAW, AND ORDER

This decision pertains to an appeal of a permit issued to L&S Associates for the construction of a refrigerated warehouse on Technology Drive off of Route 5 in Brattleboro. For the reasons explained below, the Board has determined to grant the permit.

I. BACKGROUND

On July 17, 1992, the District #2 Environmental Commission issued a permit amendment to L&S Associates (formerly C&S Associates) (the Applicant) authorizing the construction of a 202,000 square foot warehouse, parking for cars and trucks, a truck repair center, and a restroom building for truck drivers.

On August 14, an appeal was filed by William Tyler concerning 10 V.S.A. § 6086(a)(1)(air), (5)(transportation), 8(aesthetics), 9(K)(public investment), and 10(local and regional plans). 'On August 18, Mr. Tyler filed a motion to withdraw the appeal.

On August 18, an appeal was filed by Angelo DeCicco concerning Criteria 1(air and noise), 5, 8, 9(K), and 10. Later in the day on August 18 Mr. DeCicco filed a withdrawal of his appeal.

On August 20, an appeal was filed by the Dummerston Planning Commission (DPC) concerning Criteria 1(air and noise), 5, 8, 9(K), and 10.

On August 20, Windham Citizens for Responsible Growth (WCRG) filed two motions for party status, one of which included an appeal of the denial of party status by the District Commission.

On September 1, the Applicant filed a notice of cross-appeal and entry of appearance. The Applicant appealed the District Commission's decision to grant party status to Angelo DeCicco as an adjoining property owner under Criteria 1(air), 5, and 8 and to DPC and Mr. Tyler as parties by permission on Criterion 5.

A prehearing conference was convened by Board Chair Elizabeth Courtney on October 30, 1992, and a Prehearing Conference Report and Order was issued on November 10, 1992. A number of preliminary issues were raised. Parties filed memoranda and on November 24, 1992, the Board issued a Memorandum of Decision allowing the appeals of DPC and WCRG and on December 4, 1992, it issued a Supplemental Memorandum of Decision.

The hearings were convened on January 27, 1993 in Brattleboro. The hearings continued on January 28, February 17 and 18, and March 3 and 4. The following parties participated in the hearings:

L&S Associates (the Applicant) by William W. Schroeder, Esq.
Town of Brattleboro by Ted Brovitz
Brattleboro Planning Commission by Charles Miller
Windham Regional Planning Commission by James Matteau
Windham Citizens for Responsible Growth (WCRG) by Gerald R. Tarrant, Esq.
Dummerston Planning Commission (DPC) by Ahren Ahrenholz and Suzanne Whidden
Town of Dummerston by William Ash
Coalition of C&S Employees (the Coalition) by Lawrin W. Crispe, Esq.

On March 4 the Board recessed the hearing pending the filing of proposed findings by the parties and Board deliberation and decision.

On March 3, the Applicant filed a summary of proposed findings on Criteria 1(air) and 5 and WCRG filed proposed findings on Criteria 5 and 9(k). On March 9, the Applicant filed a summary of proposed findings on Criterion 9(k), WCRG filed supplemental proposed findings on Criteria 1(air), 5, and 9(k), and DPC filed proposed findings. On March 17, WRC submitted a document and the Town of Brattleboro and the Brattleboro Planning Commission filed proposed findings.

The Board deliberated concerning this matter on March 10 and 24, April 7, and May 5, 19, and 26, 1993. On May 26, following completion of its review of the evidence presented in the case, the Board declared the record complete and adjourned the hearing. This matter is now ready for decision. To the extent any proposed findings of fact and conclusions of law are included below, they are granted; otherwise, they are denied.

II. ISSUES

1. Whether the proposed project complies with Criterion 1(air pollution).

2. Whether the proposed project complies with Criterion 5(traffic).

3. Whether the proposed project complies with Criterion 9(K)(public investments).

III FINDINGS OF FACT

A. Project Description

1. L&S Associates is a real estate partnership owned by the principal shareholders of C&S Wholesale Grocers. L&S owns all of the C&S facilities in Brattleboro and leases the facilities to C&S.

2. The proposed project consists of 'a 202,000 square foot warehouse building and related parking and site improvements. The building will house C&S Wholesale Grocers' produce, meat, and dairy storage and distribution operations. It will include office space, truck repair and maintenance facilities, and other support services.

3. The Applicant's consultant on air pollution and traffic for this project, as well as previous projects, has been Resource Systems Group (RSG).

4. The proposed project will be located in the Southern Vermont Industrial Park on a 39.7 acre parcel owned by the Applicant. The total size of the industrial park is 71.4 acres. The Park is located off U.S. Route 5 (Putney Road) approximately 1.5 miles north of downtown Brattleboro.

5. Goods will be shipped to and from the proposed project by diesel tractor trailers. The Applicant has its own fleet of trailers which will be used for deliveries to grocery stores from the proposed warehouse. These trailers will be pulled by diesel tractors operated by companies under contract to the Applicant. These are referred to as "contract carriers." Goods will be shipped to the new warehouse by tractor-trailers owned

and operated by independent trucking firms, referred to as "common carriers." The Applicant estimates that approximately 42 percent of all trucks using the warehouse will be common carriers.

6. C&S's trailers are not identified on the trailers as belonging to C&S.

7. Grocery products will be shipped from the warehouse to customers throughout New England and New York state by contractcarrier. Grocery products will be brought to the C&S warehouse by common carrier. Contract carriers also pick up goods from suppliers on their way back to the warehouse. Common carriers often pick up loads from the Applicant's warehouse.

8. The new facility will employ 360 people. The site will include a total of 274 parking spaces for C&S trailers, 70 parking spaces for common carrier tractor trailers, 170 parking spaces for contract carrier tractors, and 170 employee parking spaces.

9. Common carriers will arrive at the new warehouse around the clock. A common carrier parking lot is designated for those that arrive before their scheduled loading time to wait;

10. The new facility will employ 360 people. Two hundred fifty of those have already been hired and are working at the existing Old Ferry Road facility. These employees will transfer to the new site.

11. L&S owns a 66-acre industrial site located on Old Ferry Road in Brattleboro, approximately one mile north of the site of the proposed new warehouse. The Old Ferry Road site contains an operating distribution center which contains seven buildings totalling 700,000 square feet. Included in the complex are warehouses that contain a freezer, dry goods storage building, and refrigerated space for meat and dairy products. Support facilities such as repair garages are located on the site. There are parking spaces for 1,235 vehicles.

12. The Applicant initially applied for and received a permit to build its Old Ferry Road facility in 1980 (Land Use Permit #2W0472). Since the mid-1980s, the Applicant has undergone several expansions at its Old

Ferry Road facility for which it received permit amendments. In 1991, the Applicant received an amendment authorizing the addition of 203 truck trailer parking spaces and 33 employee parking spaces and the addition of 209 employees at the Old Ferry Road facility. In early 1992, the Applicant received a permit amendment to add parking and other ancillary facilities at the Old Ferry Road facility and to increase employees there to 1,000.

13. The Applicant has another warehouse facility in White River Junction. If the new facility is constructed, the people working. at the produce department at the White River Junction facility will be transferred to the new operation. The White River Junction facility will continue to be used for other kinds of product.

14. The Applicant's business since 1991 has grown faster than the Applicant expected. Total sales of product in 1991 were approximately 114 percent of 1990 sales, and total sales of product in 1992 were approximately 152 percent of 1990 sales.

15. In early 1992, the Applicant began supplying a major regional grocery chain, Purity Supreme. This customer accounted for about half of the 1992 increase. In the fall of 1992, the Applicant added two other regional chains as customers, Victory and Big Y. The addition of these customers accounts for the balance of the 1992 increase. The Applicant had anticipated the Purity Supreme business but had not expected the other customers. Most of the increased business has been served at the existing Old Ferry Road facility, while the small produce warehouse in White River Junction and a warehouse in the Boston area have absorbed a small amount of the additional business.

16. Since its business has expanded at the Old Ferry Road warehouse, the Applicant has hired 250 additional employees to work at that facility. These employees will be transferred to the new facility when it is constructed.

17. The Applicant proposed to construct the new warehouse facility in order to accommodate the additional business that the Applicant anticipated. The proposed facility will handle only produce, meat, dairy, and frozen food operations.

18. It takes approximately three hours to load or unload a truck at the warehouse. Trucks are loaded and unloaded through large doors in the side of the building. The new facility will have 48 loading doors.

B. Criteria 5(traffic) and 9(K) (public investments)

19. The site for the proposed project is located on Technology Drive between U.S. Route 5 (Putney Road) and Interstate 91, approximately 800 feet west of the intersection of Technology Drive and Putney Road. Technology Drive is a two-lane, 28-foot wide paved Class 3 Town Highway located approximately seven-tenths of a mile south of Exit 3 of Interstate 91.

20. Putney Road is used both for commuting into Brattleboro from the north and for business, shopping, and recreation purposes. Many Dummerston residents regularly travel along Putney Road. The Vermont Agency of Transportation (VAOT) classifies this roadway a "minor arterial." In the vicinity of Technology Drive, Putney Road is a two lane highway with auxiliary turning lanes in some locations.

21. The Town of Dummerston town line is located approximately one and one-half miles north of Technology Drive on Putney Road, and four-tenths of a mile north of the existing C&S warehouse. Downtown Brattleboro is approximately one and one half miles south of Technology Drive.

22. In order to get to or from Exit 3 of I-91, vehicles must travel through the intersection of the I-91 access road with Putney Road and Route 9 (the Intersection). The Intersection is approximately seven-tenths of a mile north of Technology Drive. The road from the Interstate that continues across Putney Road becomes Route 9 east to New Hampshire.

23. Most of the trucks leaving the proposed facility will turn left from Technology Drive onto Putney Road to head north to the Intersection where they will either turn right onto Route 9 east to New Hampshire or left onto the Interstate access road at Exit 3. Little or no truck traffic from the project will go through downtown Brattleboro.

24. Trucks leaving the existing warehouse facility on Old Ferry Road turn left from Old Ferry Road onto Putney Road and either turn left at the Intersection to New Hampshire or right at the Intersection to I-91. The majority of trucks go directly to I-91 at Exit 3.

25. Putney Road between Technology Drive and the Intersection contains a number of retail and service businesses. On the west side of Putney Road are located several retail businesses and shopping plazas, the Brattleboro Reformer, a bowling alley, and two gas stations. On the east side of Putney Road are located six or seven restaurants including McDonalds and Dunkin Donuts', a gas station, several motels, two lumber yards, a hardware store, a video store, and several miscellaneous businesses. There are a total of 13 unsignalized curb cuts along this section of road. The Route 5 strip is the most significant retail concentration in the Brattleboro region. Its mix of retail stores and businesses is attractive to shoppers.

26. The Applicant represents that the new facility will function in the same manner as the existing Old Ferry Road facility, and that it is reasonable to use the traffic counts from Old Ferry Road to predict the truck and passenger vehicle traffic at the proposed facility.

27. There will be virtually no truck or passenger car trips between the proposed warehouse and the existing facility on Old Ferry Road. The new operation will be completely self-contained, including administrative offices, truck repair facilities, a fueling center, and tractor and trailer parking.

28. The proposed facility will have a maximum of 257 employees on site at any one time. According to the Applicant's formula of 3.05 passenger trips per day per employee, the employees at the proposed facility will generate 784 passenger vehicle trips per day. Based on the geographic distribution of current C&S employees, 72 percent of the passenger vehicle trips will use Route 5 north of Technology Drive and 28 percent will use Route 5 south of Technology Drive toward Brattleboro. Beyond the Intersection, 49 percent of total passenger vehicle traffic will use I-91, 21 percent Route 9 east, and two percent Route 5 north toward Dummerston and Putney.

29. The proposed project will generate an average of approximately 310 one-way tractor-trailer truck trips per day, and a maximum of 600 tractor-trailer truck trips per day on the highest days. Based upon the Applicant's formula for estimating the number of common carriers, approximately 254 of the tractor-trailer truck trips on the highest days will be common carriers. The facility will operate 24 hours per day, and the Applicant testified that tractor-trailer truck trips will be spread fairly evenly around the clock.

The Applicant stated that it expects approximately 24 tractor-trailer truck trips during the afternoon peak hour on an average shipment day and approximately 39 tractor-trailer truck trips during the afternoon peak hour on the highest shipment day of the year. That translates into one tractor-trailer truck every 2-1/2 minutes during the peak hour on average days, and one tractor-trailer truck every 1-1/2 minutes on the highest shipment day.

31. Although the Applicant stated that its main repair and maintenance operation is located at the Old Ferry Road facility and will be located at the new facility on Technology Drive, C&S trucks have used repair facilities in Westminster, Vermont; Vernon, Vermont; and Chesterfield, New Hampshire. Trucks driving to or from these repair facilities are in addition to the truck traffic reported by the Applicant. The Applicant is also operating a temporary trailer storage facility on the north side of Old Ferry Road across from the permitted C&S facility.

32. Common carriers that arrive before their scheduled unloading times are supposed to wait in the parking lot. Sometimes these trucks hang out in other private parking lots in the area. For example, some common carrier drivers use the parking lots of the Ames Department Store on Putney Road south of the Intersection and the Howard Johnson parking lot on the southeast'corner of the Intersection.

33. While the Applicant can regulate the activities of its contract carriers, it has no control over the common carriers that bring goods to its warehouse.

34. The Applicant stated that as many as 800 contract carrier trips and an unknown number of common carrier

trips per day have been entering and leaving the Old Ferry Road facility since the Applicant expanded its business. The land use permit for that facility limits contract carriers to 494 trips per day and common carriers to 224 trips per day, for a permitted total of 718 tractor-trailer truck trips per day.

35. A traffic count conducted by the Dummerston Planning Commission for 24 hours from November 30 to December 1 revealed 974 tractor-trailer trips leaving and entering the existing C&S warehouse. This number does not include tractors without trailers ("bobtails") and light and medium trucks. The number of bobtails counted on Putney Road over the 24-hour period totalled 45. The number of C&S generated light and medium duty truck trips on Putney Road over the 24-hour period totalled 66.

36. Another 24-hour traffic count conducted on December 14-15, 1992 by WCRG's traffic expert to determine the total number of tractors, trailers, and other trucks leaving and entering the Old Ferry Road site revealed a total of 1137 tractor-trailers (50 of which left or entered the site between 5:00 and 6:00 p.m.); 65 other trucks; and 77 bobtails. This is in contrast to the maximum 718 tractor-trailer truck trips allowed in the permit for the Old Ferry Road facility.

37. Finding of Fact #5.n. in support of Land Use Permit #2W0472-8, issued April 17, 1991 for a 50,000 square foot addition to the Old Ferry Road facility, states:

> The applicant's traffic engineer [Thomas Adler] has indicated the intersection has and will continue to have limited capacity to absorb increases in peak hour traffic until the recommendations recommended in the Brattleboro's Traffic Systems Improvement Study are implemented. Exhibit 70. The Agency of Transportation's representatives testified that such improvements will not be likely for a decade.

Exhibit 70, referred to in the finding quoted above, is a letter from Thomas Adler to the Applicant. It further states:

> However, this certainly does not preclude new development which 1) results in only modest increments in peak period traffic or 2) provides mitigation in the form of incremental improvements to the US 5/VT 9 intersection. ...

38. The improvements recommended in Brattleboro's Traffic System Improvement Study have not been made, and are not expected to be made in the near future.

39. In December 1991, the Applicant applied for an amendment authorizing the addition of 203 truck trailer parking spaces and 33 employee parking spaces and the addition of 209 employees at the Old Ferry Road facility. The District Commission accepted a mitigation program offered by the Applicant to eliminate 400 one-way commuter trips per day and the Applicant's promise not to increase any additional trips during the 4:00 to 5:30 p.m. period. The permit amendment requires that if the ride-sharing program offered by the Applicant did not succeed in achieving the goal of eliminating 400 trips by September 1, 1992, the Applicant must submit documentation of the elimination of 50 C&S generated trips during the 3:00 p.m. to 5:30 p.m. period, determined by the District Commission to be the peak traffic volume time.

40. The Applicant was not able to achieve its goal of reducing the number of one-way commuter trips by 400 through the creation of carpools. Although, the Applicant claimed in a letter to April Hensel, District Coordinator, dated September 14, 1992 that C&S reduced the number of incoming and outgoing trips during the peak hour from 717 on December 6, 1991 to 655 on July 9, 1992. However, since July 1992, 250 employees have been added at the Old Ferry Road facility. Based upon the Applicant's formula, the number of daily employee passenger trips has increased by approximately 540 over the past year.

41. The Level of Service (LOS) is a standardized grading system that reflect the levels of delay resulting from congestion at signalized intersections. LOS A is excellent (no delay), B is 5-15 seconds delay, C is 15-

25 seconds delay, D is 25-40 seconds delay, E is 40 to 60 seconds delay, and F is more than 60 seconds delay. LOS C-is preferred as the lowest acceptable LOS.

Delays of up to 60 seconds result in drivers taking more risks than they will with shorter delays.

42. LOS predictions are calculated by computer based upon a variety of data, including existing traffic volumes, expected growth in traffic volumes without the project, expected traffic from the project, physical characteristics of the intersection, randomness of traffic flow, and the amount of green time allocated to each approach to a signalized intersection.

43. An overall level of service rating does not necessarily reflect whether an intersection is operating safely or well. There are twelve movements through the Intersection; the level of service is determined by averaging the levels of service for each of the twelve movements. If the LOS for an intersection is D, it is likely that some of twelve movements are operating at LOS E or F.

44. The design hour for LOS analysis is the 30th highest traffic hour of the year. The 30th highest hour is approximated by adjusting actual traffic counts upwards or downwards based upon patterns obtained from a VAOT continuous counter.

45. RSG has determined that the LOS during the design hour is currently D at the Intersection for five separate movements (east bound to north bound, east bound through, west bound to south bound, north bound to west bound, and south bound to east bound), and RSG expects it to remain at D with or without construction of the proposed project. This is because RSG believes there is now excess capacity at the Intersection because the total traffic volume which could be accommodated while achieving LOS D ranges from 3200 to 3300 vehicles per hour. Two other movements will have LOS E, and one movement will have LOS F.

46. LOS for signalized intersections at some side streets off Putney Road is currently at E and will remain at E with or without the proposed project.

47. Traffic volumes at the Intersection during the afternoon peak hour in previous years have ranged between 2100 and 2800 vehicles, and traffic volumes during the morning peak hour have ranged between 1700 and 2000 vehicles. A traffic count done by WCRG on December 18, 1992, found 3,207 vehicles passing through the Intersection between 4:30 and 5:30 p.m. This represents an increase of more than 14 percent over the traffic volumes used by the Applicant to calculate current and future levels of service. This volume of traffic will reach the level which RSG has determined will cause a decline from LOS D to LOS E at the Intersection.

48. RSG revised its design hourly volume based on traffic counts at the Intersection from 4:00 to 5:00 p.m. on December 23, 1992, and relied on this volume for its newly calculated 30th highest hour, although the peak hour on that date was between 2:00 and 3:00 p.m. The 30th highest hour as calculated by RSG may not reflect the 30th highest hour in 1992, since according to VAOT data, December was the ninth lowest traffic volume month of 1992.

49. In making its traffic projections, the Applicant used traffic counts from 1990 and 1991 and applied a growth factor of less than one percent per year. In contrast, VAOT data from its continuous counters show a 5.1 percent increase from November 1991 to November 1992 on Putney Road, with an average daily traffic volume of 17,567. It may be that the lower traffic volumes in 1990 and 1991 were the result of a depressed economy, and that the increased traffic reflects the improvement in the economy in 1992.

50. RSG presented lower design hourly volumes and lower traffic volumes for the 1996 p.m. peak period at the Intersection in connection with this application than it presented to the District Commission in connection with amendment application proceedings in 1991 and early 1992 for the Old Ferry Road facility. For instance, RSG's earlier projection for the traffic volume northbound on Putney Road was 1250 vehicles, compared with its projection submitted with this application of 977 vehicles for the same place. The lower volumes were based on the use of older traffic data and a low growth factor.

51. The level of service calculations performed by RSG were based upon its low projections of traffic growth. Calculations based upon the updated traffic counts could show lower levels of service.

52. Had RSG relied on recent traffic data and a more realistic growth factor, the projected traffic volumes would have been higher than the volumes it projected in 1990 since both C&S and the total number of vehicles at the Intersection have grown since then.

53. Based upon traffic data from the Applicant and VAOT's traffic counters, the peak hour traffic congestion occurs during the period from 4:J0 to 5:30 p.m. Another, smaller, peak occurs between 8:00 to 9:00 a.m. On most days traffic volumes markedly increase between 11:OO a.m. and 12:00 noon, and continue to increase until they drop off around 6:00 p.m. On many days, the traffic volume from 3:00 to 4:30 p.m. is almost as high as the peak hour. After 6:00 p.m. the traffic volume drops sharply. The existing traffic creates congestion at the Intersection on many days during the afternoon.

54. The Applicant defines the "peak" days (days of highest traffic) as those that fall just before Thanksgiving, Christmas, and other holidays.

55. In order to improve traffic flow from the unsignalized curb cuts, the Applicant plans to pay for installation of a traffic light at the intersection of Technology Drive and Putney Road, and to coordinate the traffic signals along the Putney Road corridor to cause vehicles to move-in organized. "platoons" with large gaps in between. The Applicant believes this will improve opportunities for vehicles to enter Putney Road at the unsignalized curb cuts.

56. The Applicant believes that the "platoon" effect will be accomplished by the coordination of the timing at the existing traffic signals from the Fairfield Plaza through Black Mountain Road. The timing of the signals will be set so that they turn green progressively along the corridor, thereby allowing a group of vehicles to move through the corridor without stopping. The signals will be coordinated in both directions.

57. Because of the large number of curb cuts along the affected section of Putney Road, the intended progression of vehicles can easily break down. Vehicles that turn onto Putney Road and trucks entering Putney Road from Technology Drive will destroy the platoon effect. Platooning generally works well on one-way streets, and can be effective on two-way streets if side street spacings are optimal, if there is minimal traffic entering the main roadway from the side streets, and if there is no interference between side streets. On this section of Putney Road, drivers attempting to leave driveways between intersections will have a difficult time turning left, because they will need to find simultaneous gaps in both northbound and southbound traffic; The Applicant's traffic signal retiming plan does not create such simultaneous gaps.

58. In 1987, the VAOT listed the Intersection as a "high accident" location. VAOT's 1990 and 1991 reports aiso list this Intersection as a "high accident" location. In November 1989 VAOT retimed the traffic signals at the Intersection to eliminate conflicting turning movements. Since the retiming, accident rates have been below the so-called "critical rate." The "critical rate" is an accident rate equal to double the average accident rate for similar intersections throughout the state.

59. From January 1990 to March 1, 1992, there were 39 reported accidents on Putney Road between Technology Drive and the Intersection. Approximately 38 percent of these accidents were rear end collisions. Approximately 28 percent were caused by failure to yield right of way. A large number of these accidents involved vehicles entering or leaving locations such as Pizza Hut or the bowling alley and getting hit by a through vehicle.

60. A major cause of accidents along this section of Putney Road appears to be the high number of unsignalized side streets and driveways and the inconsistent lane patterns, which lead to erratic driving and excessive lane shifting. With the addition of the tractor-trailer trucks from this project, the difficulty in safely making left turns from unsignalized side streets and driveways will be increased during the hours of high traffic volume, thereby increasing the likelihood of accidents.

61. A tractor-trailer truck at an intersection has the impact of as many as five passenger cars with respect to the amount of time it takes to get through the intersection from a standing start. If 19 trucks leave the facility during the peak hour, the equivalent could be up to 100 passenger cars in terms of congestion at the Intersection.

62. Automobile drivers are often reluctant to follow trucks because of the exhaust fumes, limited visibility, and operating characteristics. In these circumstances, automobile drivers will often take unsafe risks to get ahead of a truck or to prevent a truck from pulling in ahead of them. Tractor-trailers also reduce visibility for passenger car drivers.

63. An overly congested shopping district tends to drive customers and businesses away, as people avoid the unpleasantness and risks involved with sharing the road with large trucks.

64. Because of congestion at the Intersection, vehicles attempting to exit the Interstate on the eastbound exit ramp at Exit 3 often back up onto the Interstate during the afternoon peak hour. The Applicant plans to remedy this by adding extra green light time to eastbound traffic. One result, however, will be that the delay for the other movements through the Intersection will increase.

65. The Applicant proposes to reconfigure the intersection by creating a wider turning path for vehicles entering Technology Drive from Putney Road southbound.

66. The Brattleboro Planning Commission conditioned its site plan approval of the project on the Applicant's providing the following additional traffic improvements:

a. Make a fair contribution towards construction of sidewalks along both Technology Drive and Putney Road.

b. Cooperate with, and make a fair contribution towards, the construction of a side connector road between Technology Drive and either Chickering Drive or Black Mountain Road if and when such a road is proposed for construction.

c. Provide a designated area as a bus stop, and provide a shelter.

d. Provide a designated parking area for bicycles, including a storage rack.

e. Encourage alternative non-motorized modes of transportation.

67. The Brattleboro Planning Commission has planned improvements to Putney Road which will increase the public's enjoyment of the area and attract more business for the merchants of the area. Their plans call for the addition of bicycle lanes and pedestrian walkways to encourage shoppers and beautify the area.

68. Relatively few pedestrians or bicyclists use the Putney Road corridor in the area of the proposed project. The design of a highway strip commercial area is not conducive to use by pedestrians and bicycles. The higher traffic volumes and large number of curb cuts and turning vehicles create unsafe conditions for those modes of transportation. Nonetheless, some bicyclists do use Putney Road.

69. The Applicant proposes to organize its employee shift schedules at the proposed warehouse so that no shifts will start or finish during the period from 3:00 to 5:30 in the afternoon. The Applicant does not operate with traditional shifts; shifts are related to the work that is to be performed and when it is completed, the employees leave.

70. The Applicant has considered the feasibility of constructing a connector road from the proposed facility to the Interstate access between the Interstate and Putney Road, and concluded it will not be possible due to the large number of landowners including' VAOT and the presence of a cemetery and a wetland between the proposed The Applicant site and the Interstate access. The probability of a new Interstate exit near the proposed site is very low or nonexistent.

71. Route 9 is a state highway that begins in Brattleboro and continues west across the state through Bennington. It is an arterial route that connects the Connecticut and Hudson River Valleys, and is the only direct east-west route in the southern part of the state. The

Applicant uses that route fairly heavily and uses it from all their facilities. The Applicant did not include any information on Route 9 as a public investment affected by this project or on any public investments on Route 9 potentially affected by this project.

72. It is not clear how many tractor-trailer trucks using the existing C&S warehouse drive on Route 9 west or how many tractor-trailer trucks associated with the proposed facility will use Route 9 west. A memorandum to the Applicant from RSG, dated March 2, 1992 (Exhibit 24 in the District Commission proceeding), states that C&S trucks and common carriers servicing the Applicant currently comprise 19 trips on Route 9 east of Wilmington, and that the Applicant did not anticipate any additional trucks on that road as the result of the proposed project. This number came from a survey of C&S drivers that the Applicant did in mid- to late-1991. The survey only asked the drivers what route they had taken that particular day, not what route they used generally. The Applicant's business has doubled since mid-to-late 1991, on an annualized basis, and the Applicant has obtained significant new accounts since that time.

73. At the hearing on March 4, the Applicant stated that the average number of C&S truck trips on Route 9 is 120 per day, based upon checking its records for one day in February 1993. The 120 trip figure does not include any common carriers. The Applicant does not know how many common carriers use Route 9 to get to, or return from, its facilities. The Applicant assumes that the truck trips on Route 9 are evenly distributed over 24 hours but has not verified this.

74. When the Applicant initially discussed its proposal with the Windham Regional Commission, the Applicant presented information that the total daily average of C&S contract carrier trucks that will use Route 9 west will be 18, and the total daily average of common carriers from C&S that will use Route 9 west will be one. As a result, the Windham Regional Commission was not concerned about truck traffic on Route 9 west, and it did not determine if there were any public investments on Route 9 or, if so, what the impacts of the project would be.

75. The Windham Regional Commission is concerned about growing traffic problems on Route 9, particularly in the villages of Wilmington and West Brattleboro.

76. The Academy School, a public elementary school, is located on Route 9 in the Village of West Brattleboro, as is the West Brattleboro Fire Station. The Marlboro Elementary School is also, located on Route 9.

C. Criterion 1(air pollution)

77. The total number of parking spaces at the proposed facility will be 684. The parking lot will contain 274 parking spaces for C&S trailers and 70 parking spaces for common carrier tractor-trailers. Some of the common carriers parked at the warehouse awaiting unloading will idle their truck motors to operate amenities in the truck cab and to keep diesel fuel from jelling in cold weather.

78. The trailers operated by the Applicant and common carriers will be equipped with diesel-powered refrigeration units, known as "reefers." The reefers are powered by diesel engines mounted on the trailers. Some of the reefer units will run while the trailers are parked at the facility, either to cool the trailer in preparation for loading or to keep the contents cool. Approximately 80 reefers will be operating on the site during any given period. Reefers and trucks may be idling 24 hours a day.

79. The reefers will produce exhaust emissions and noise, both at the project and on the highway. The reefers will use chlorofluorocarbons (CFCs) as a refrigerant, which is an air pollutant if it escapes from the unit.

80. Diesel exhaust contains both gases and solids. The diesel exhaust gases include carbon dioxide, carbon monoxide (CO), formaldehyde, acrolein, nitrogen oxide (NOx), and nitrogen dioxide. These combined gases are irritants to the respiratory tract and lungs. They are chemically reactive gases which contribute to photochemical smog. Diesel exhaust solids are primarily fine soot.

81. The diesel exhaust pollutants of greatest public health concern are the fine particulates (diesel soot), Nox, and CO.

82. The State of Vermont requires an indirect source air pollution permit for stationary sources. If a project involves fewer than 1,000 parking spaces, no air pollution permit is required. Mobile sources of air pollution are exempted from State regulations. State regulations cover only carbon monoxide and do not include contaminants such as particulate matter or nitrous oxides.

83. The Applicant was required to obtain an air quality permit from ANR for the expansion of parking at its Old Ferry Road facility. In conjunction with its permit application, the Applicant conducted an air quality impact analysis to document existing CO concentrations near the Intersection. The analysis was based upon traffic counts conducted in June 1990 and December 1991.

84. The State has established two health-related Ambient Air Quality Standards (AAQS) for CO: an eight-hour average of 9 parts per million (ppm) and a one-hour average of 35 ppm.

85. The Applicant's air quality study documented existing CO concentrations at the Intersection of 10.8 ppm for a one hour average, and 8.6 parts per million for an eight-hour average. ANR reviewed the Applicant's analysis and performed remodeling to verify the results. Based on its analysis, ANR determined that the existing levels of CO at the Intersection were 20 ppm for the one-hour average and 8.6 to 10 ppm for the eight-hour average. ANR believes the higher range is not likely to occur based upon its assumption that the Applicant's proposed improvements to the Intersection will improve traffic flow, thereby reducing the concentrations of CO. On April 27, 1992, ANR issued Permit #AP-92-001 to The Applicant for the parking lot of the Old Ferry Road facility.

86. The air pollution control permit issued to the Applicant contains conditions. These include a requirement for a saturation ambient air monitoring study for particulate matter (PM10) and CO at the Intersection. Should the results of the monitoring study indicate exceedences of the one-hour or eight-hour CO standard, the Applicant is required to submit a report to ANR on methods it will employ to reduce the concentrations of CO at the Intersection.

87. The only component of diesel emissions considered by the State permit is carbon monoxide. The computer model used by the Applicant on which its air pollution analysis was based predicts only the concentration of CO. The model assumed a decrease in levels of CO due to better emission controls on newer vehicles, improvements to the highway to facilitate movement of vehicles and reduce congestion, and organization of workers' shifts at the Old Ferry Road facility to ensure arrival and departure at off-peak traffic periods of the day.

88. There are no state or federal air pollution permit requirements applicable to the operation of diesel truck tractors or reefers. There are no applicable standards for evaluating the effect of truck diesel exhaust in a parking lot.

89. While federal standards have been adopted and apply to the diesel exhaust pollution from newly manufactured diesel tractor engines, no federal or state standards apply to the emissions generated by diesel reefer engines.

90. Because the project will be located in an area of traffic congestion, and will have trucks idling in the parking lots, RSG performed computer modeling to determine if the project will cause any violations of state or federal air quality standards. No violations were found.

91. The Applicant has no control over the age, maintenance, or diesel emissions produced by the common carrier tractors, which comprise approximately 42 percent of the tractors and reefers using the proposed project.

92. New idling diesel trucks emit approximately 5.4 grams of particulates per hour, while older engines emit considerably more. An average is approximately 11.8 grams per hour.

Oxides of Nitroaen

93. Diesel motors produce Nox in greater concentrations than gasoline-powered automobiles. NOx consists of three difference compounds: nitric oxide (NO), nitrogen dioxide (NO_2), and nitrogen trioxide (NO_3).

94. NOx in high concentrations irritates the lung and makes it more susceptible to respiratory infections. NOx creates acid haze and acid rain and contribute to the formation of ozone.

95. The U.S. EPA regulates NOx emissions from diesel trucks. Currently, new diesel trucks can emit no more than 5.0 gm/bhp-hr. In 1998 this limitation will be reduced to 4.0 gm/bhp-hr. The Applicant's contract haulers have a new fleet of truck tractors which meet current and future standards.

96. The only ambient air quality standard in Vermont for NOx is an annual average concentration of 100 micrograms per cubic meters (ug/m3) or 53 ppb for NO_2. The Vermont standard is the same as the federal standard. However, under Vermont law only stationary sources are required to show compliance-with the standard. There is no stationary source associated with this project which is subject to this standard.

97. The State of Vermont has two NOx monitoring stations, one in downtown Burlington and one in downtown Rutland. In Burlington the annual average concentration of NO_2 is approximately 35 micrograms per cubic meter and in Rutland 28 micrograms per cubic meter, both well below the 100 ug/m3 annual average standard.

98. The District Commission requested that RSG test NO_2 levels at the Applicant facility on Old Ferry Road to confirm that elevated NOx levels were not resulting from operating reefers and idling trucks and tractors. On June 17, 1992, RSG took readings from 7:35 - 8:40 a.m. at the boundary of the existing Old Ferry Road site using the Thermo Environmental Instruments Model 42 Chemiluminescence NO-NO_2-NOx Analyzer. The instrument was calibrated to EPA specifications by CAE, Inc. prior to field set-up. Ambient temperature at the time of the readings was 19 degrees Celsius, within the EPA reference standard of 15 to 35 degrees.

99. RSG's testing showed that at site 1, the C&S parking lot at the Old Ferry Road entrance, the average total NO_2 was 9.2 ppb. At site 2, downwind from the Applicant's common carrier truck parking lot, the average total NO_2 was 9.2 ppb. The Vermont and federal annual standard for NO_2 is 53 ppb. The one-hour monitoring at the Applicant's facility cannot provide a

sufficient sample size to estimate annual average NO2 concentrations, but simply provides information on NO_2 levels.

100. No air pollution monitoring for NOx or NO2 levels was done for the Technology Drive site. Nonetheless, since the proposed project is approximately one-half the size of the Old Ferry Road facility, it is reasonable to conclude that the amount of NOx and NO2 generated by diesel exhaust from the proposed facility will be below the federal and state standards.

Diesel Particulates

101. Particulates are small particles of pollution that are visible when highly concentrated. Diesel soot is between .1 and .5 microns in size. This particle size, when inhaled, penetrates to the deepest part of the human lung and is cleared only with difficulty. This particle size remains airborne indefinitely and does not settle to the ground. It is washed from the ambient air only by rain or snow. As a consequence, diesel soot is being breathed all the time in areas where it is emitted or to which it is blown. Smaller particle sizes are worse from a health standpoint than larger particles.

102. Two categories of particulates are regulated by the U.S. EPA and the State of Vermont: Total Suspended Particulates (TSP) and Total Respirable Particulates (PM10). The TSP standards apply to all particulates; the PM10 standard applies to particulate matter with a diameter less than 10 microns. Both standards generally apply only to stationary sources and limit both the increase in particulate concentrations from the stationary source and the overall concentration of particulates.

103. RSG modeled particulate emissions generated by diesel trucks at the proposed site using the U.S. EPA's PARTD and ISCST computer model. The model shows that the project meets the TSP and PM10 ambient air quality standards.

104. As with NOx, the U.S. EPA particulate regulations for trucks will become significantly more stringent in the next few years. At this time, trucks are required to meet a 0.25 gram per brake horsepower-hour standard

which will be reduced to 0.10 by 1994. Part of this reduction will be achieved by a reduction in the sulphur content of diesel fuel from 0.25 percent to 0.05 percent by weight by 1995.

105. As discussed above with respect to NOx, the Applicant's contract carriers have replaced their trucks with a new tractor fleet. The new tractors are equipped to meet the federal air pollution standards which will apply to diesel trucks in 1994, both for NOx and for particulates.

106. Approximately 42 percent of the tractor-trailer truck traffic at the facility will be common carrier tractor-trailer trucks which are not under the Applicant's control. These vehicles will not all meet the 1994 emission standards. The Applicant estimates, however, that by 1994 or 1998 these vehicles will be replaced with truck tractor models which meet the 1994 particulate emission standards.

107. The Applicant estimates that the maximum annual concentration of diesel exhaust from the proposed facility will be approximately 2.6 micrograms per cubic meter. Although the EPA has no standards for diesel engine exhaust, after reviewing data on the long-term toxicity of diesel exhaust it has concluded that a level of exposure that is safe and free of side effects is 5 micrograms per cubic meter.

108. Monitoring of particulates at the Intersection by the Applicant showed a maximum 24-hour concentration of 72 micrograms per cubic meter. The federal and Vermont state standards for PM10 on a 24-hour basis are 150 micrograms per cubic meter.

109. The World Health Organization is affiliated with the United Nations. It recommends guidelines to set standards to protect public health and was referred to by both the Applicant's and WCRG's expert witnesses as authoritative. Its recommended standards for PM10 on a 24-hour basis is 70 micrograms per cubic meter.

110. The Applicant estimates that the proposed project Will add 35 micrograms per cubic meter of PM10 to the ambient air. The background particulate level has been found to be 72 micrograms per cubic meter. Adding the two together equals a projected level of 107 micrograms

per cubic meter after the proposed project is built. This exceeds the World Health Organization's standard, but is below State and federal standards.

Health Risk Assessments

111. All of the state and federal standards discussed above for carbon monoxide, oxides of nitrogen, toxic air pollutants, and particulates are designed to protect the health of the public, including sensitive individuals.

112. Mobile sources are exempt from the State's Air Pollution Regulations. Nevertheless, the Applicant has demonstrated that the level of emissions generated from the maximum number of diesel engines operating at the proposed site will meet these standards. RSG calculated the total amount of each toxic pollutant found in diesel exhaust and found that emissions of phenanthrene, pyrene, benzo-a-pyrene, formaldehyde, acetaldehyde and acrolein during the highest eight hour period will be well below the State's action levels. The "action level" is the threshold amount of emissions which require an applicant to conduct further study to determine if concentrations are hazardous.

113. Because of the potential health risk from diesel exhaust, RSG evaluated the effect of various pollutants contained in diesel exhaust in three ways. First, RSG predicted the air concentration or amount of each pollutant produced from running diesels at the proposed warehouse and compared this result to state air quality standards applicable to stationary sources such as diesel generating stations. Second, RSG evaluated the increased risk of cancer for an individual exposed to aldehydes and to the "marker" carcinogenic diesel exhaust pollutant benzo-a-pyrene at the maximum calculated concentration for a period of 70 years. Third, RSG compared the exposure of harmful pollutants from the project's diesels to other common sources of pollution.

114. Benzo-a-pyrene is one of a group of compounds produced from a combustion process known as polycyclic aromatic hydrocarbons (PAH). Benzo-a-pyrene is considered a marker for PAH. That is, exposure levels and health risks PAH generally coincide with exposure levels and

health risks of benzo-a-pyrene. As discussed above, benzo-a-pyrene levels are below State action levels.

115. Carbon monoxide causes acute health problems such as dizziness, headaches and even death in severe cases. The State Department of Health has a warning level standard of 35 ppm for indoor hockey rinks (if the CO level exceeds this concentration at any time, the rink will be evacuated). CO concentrations of 50 ppm in a 1.5 hour period and 30 ppm for a 4 hour period raise levels of carboxyhemoglobin in the blood, leading to adverse health effects.

116. RSG modeled the worst case air concentrations of benzo-a-pyrene and aldehydes which will result from the operation of trucks and refrigerated trailers at the proposed site. RSG used a model approved for use by both the State of Vermont and the U.S. EPA. The model predicts the highest annual average concentration on or near the project site. RSG then applied a health risk analysis technique used by the State of California to predict the cancer risk.

117. The results of the benzo-a-pyrene model showed that the risk of cancer for the highest exposed individual, assuming one lifetime of exposure at the worst case building receptor, is one in more than 15 million. The results of the formaldehyde and acetaldehyde model showed that the risk of cancer for the highest exposed individual, assuming one lifetime of exposure at the worst case building receptor, is one in 1.8 million. The EPA and most other regulatory agencies consider a risk of less than one in one million to be below an action level. These risks are for a person located at the worst-case site for an entire lifetime.

118. A comparison of the amount of total particulates and PAH produced by the diesel motors operating at the project with other sources in the Town of Brattleboro indicates the following:

a. The diesel motors operating at the project could produce 523 grams of total particulates per hour and .0006 grams per hour will consist of PAH.

b. By contrast, all industrial sources in the town currently produce 8300 grams per hour of total particulates.

c. All woodstoves in the Brattleboro area produce an estimated 24,000 grams per hour of total particulates and 3 grams per hour of PAH, based on the assumption that 25 percent of Brattleboro households burn wood. If it is assumed that 8.7 percent of households burn wood as primary heat, as indicated in the 1980 census, woodstoves in Brattleboro produce approximately 8,000 grams per hour of total particulates and one gram per hour Of PAH.

119. The burning of fossil fuels and wood produces pollutants similar to diesel exhaust. Particle sizes created by fossil fuels and wood burning are larger than those of diesel. In some areas of the country, wood burning is either prohibited outright or prohibited during inversion events.

120. The federal standards for diesel engines have been in effect since the early 1980s. The standards cover particulates, oxides of nitrogen, carbon monoxide, and hydrocarbons. Standards for diesel exhaust emissions have been tightened because of the potential for adverse health effects, including the potential to cause cancer.

121. A Colorado Department of Health study of the human health impacts of diesel exhaust concluded that diesel exhaust particulates are of great concern for their effects on human health. Because many of the compounds adsorbed onto the diesel particulate's carbon core have been proven to be mutagenic and carcinogenic, there is great concern about increasing the incidence of lung cancer, as well as increased aggravation of symptoms in patients with chronic obstructive pulmonary disease.

122. The federal EPA has developed ambient air quality standards for certain pollutants, including carbon monoxide, oxides of nitrogen, sulfur dioxide, and particulate matter. The allowable ambient concentrations are set at concentrations intended to protect public health, including sensitive individuals.

123. The Vermont air toxics regulations were also developed with the purpose of protecting the health of people living and working near sources of air contaminants.

124. Neither the EPA nor the State of Vermont has established a cancer risk factor for whole diesel exhaust or for particulates from diesel exhaust.

125. The U.S. EPA has not established a "unit risk factor" (the risk of contracting cancer when exposed to a specific pollutant concentration) for whole diesel exhaust. It is currently reviewing the information on diesel exhaust to establish a unit risk factor.

126. RSG conducted a cancer risk assessment for diesel pollutants from the proposed facility, based on the two chemicals present in diesel engine exhaust which are known or suspected carcinogens and for which the U.S. EPA has adopted a unit risk factor: formaldehyde and benzo-a-pyrene. RSG concluded that the cancer risks from those two compounds are one in about two million for formaldehyde and one in fifteen million for benzo-a-pyrene.

Environmental Factors

127. Meteorology plays a significant role in affecting dispersal of pollutants. The Applicant's proposed warehouse is located in a river valley surrounded by high hills and ridges. Air inversions, which present a "lid" or "cap" to the vertical mixing or dispersive ability of air and pollutants, occur in the Brattleboro area. During air inversions wind speeds are quite low, from tenths of a mile per hour to zero. The result is that whatever. pollutants exist in the air stay relatively close to'the ground rather than dispersing, and are therefore breathed in more concentrated amounts for longer periods of time than if there were wind to disperse the pollutants.

128. Air pollution modeling includes data of wind speed, wind direction, and temperature collected at surface meteorological stations by the National Weather Service (NWS). These stations are the only ones allowed by the U.S. EPA for use in air pollution modeling. The closest NWS stations to Brattleboro are Burlington, Vermont; Albany, New York; Concord, New Hampshire; Lebanon, New Hampshire (closed in 1964); and Worcester,

Massachusetts. ANR recommends the use of Concord weather data for refined air pollution modeling in Brattleboro. Other stations may also be used on a site specific basis only if they follow U.S. EPA's strict quality control guidelines.

129. The Applicant's modeling of the roadways used one mixing height (from Albany), stability class D (neutral atmosphere), and 1 meter/second wind speed for all conditions. This is considered by U.S. EPA and ANR to be the worst case meteorological condition for an eight-hour period during a winter day and to be the appropriate assumptions to use in modeling. The Applicant's modeling of the parking areas used one full year of meteorological data from Concord (surface data) and Albany (upper air data). The surface data included hourly wind speed, wind direction, cloud cover, temperature, and ceiling height. The upper air data included twice daily mixing heights observations.

130. The assumptions that were used in the air pollution. modeling performed by the Applicant were selected to yield a conservative, worst-case result.

131. The Applicant's air pollution computer model assumes a constant 2.2 miles per hour (one meter per second) wind, but cannot take into account the times when the wind speed is less than 2.2 miles per hour. During air inversions the wind speed is sometimes less than 2.2 miles per hour.

132. Modeling done using both Concord and Lebanon weather data show that the highest annual average concentrations of diesel particulate due to the warehouse activity at the closest Dummerston Town line is at most 0.05 micrograms per cubic meter. This is below the 1 microgram per cubic meter that U.S. EPA signifies as being a "significant" concentration.

133. The terrain at Lebanon and Concord is different from Brattleboro. This difference could affect the applicability of the modeling to Brattleboro. No data exists on the actual frequency of air inversions in the Brattleboro area.

Chlorofluorocarbons

134. Chlorofluorocarbons (CFCs) are a class of chemical compounds which contain chlorine or fluorine and which are gases at normal temperatures. CFCs are used in refrigeration systems because of their ability to transfer heat efficiently. The refrigeration units on the Applicant's trailers, as well as the common carrier trailers, use CFCs.

135. Vermont's controls on CFCs in air conditioning apply to passenger automobiles, not trucks. Some refrigerated trucks use CFCs as a refrigerant.

136. The Agency of Natural Resources has published a report on "Ozone Depleting Chemical Usage in the State of Vermont," dated January 1990. This report ranks certain chlorofluorocarbons in terms of their relative ozone depleting potential relative to CFC-11, a common refrigerant. As refrigerants, CFC-12 is almost equivalent to CFC-11 in terms of its ozone depleting potential. CFC-115 has approximately 40 percent and HCFC-22 has only five percent of CFC-11's ozone depleting potential. Refrigerant chemicals such as HFC-134a do not harm the ozone layer at all.

137. A similar comparison can be made with these chemicals' global warming potential. CFC-12 has 2.1 times the greenhouse warming potential of CFC-11, while CFC-115 has 7.5 times, HCFC-22 has 0.34 times, and HFC-134a has 0.26 times the global warming potential of CFC-11. In short, when taking into account both ozone depleting potential and global warming potential, HCFC-22 and HFC-134a affect the atmosphere significantly less than other options.

138. Most of the Applicant's refrigerated trailers use R-502 as a refrigerant, which is a 49/51 percent mixture of HCFC-22 and CFC-115. R-502 has an ozone depleting potential of 0.23 and a global warming potential of 4.0. About six of the older R-12 reefers are still in use, but are being phased out. The Applicant also operates several prototype R-22 Reefers, which use only HCFC-22. If there reefers prove to operate successfully, they will be phased in to replace the R-502 reefers.

139. As an alternative to using R-502 and R-22 reefers, the Carrier Corporation is currently working on an experimental model of an HFC-134a reefer. When this unit is fully developed, the Applicant will be the first company to test the prototype; however, at the present time there is no viable alternative to R-502 or R-22 units.

140. The Applicant's plans are consistent with the ANR recommendations for the conversion of transportation refrigeration units from CFC-12 to HCFC-22. Similarly, for fixed location (retail) refrigeration units using CFC-502, the study recommends conversion to HFC-134a units when they become available.

141. Chlorofluorocarbons used as a refrigerant in the reefers could escape because of a mechanical breakdown or during a repair procedure. Detecting a refrigerant leak, especially in truck units, is difficult to do, and so controlling a leak is also difficult. Currently, there are no detection monitors which can be mounted on a truck or refrigeration unit to serve as an ongoing monitor. There are, however, electronic leak detectors and halide leak detectors which can be used at regular service intervals to check for leaks. These are used by the Applicant to check each unit during its regular system maintenance, every thirty days. In addition, a unit is checked for leaks when there is a problem with the unit.

142. During truck servicing, the Applicant uses refrigerant pump-down and reclamation equipment which minimizes refrigerant loss. The Applicant owns four Robinair model 17500B freon reclaimers. Whenever a refrigeration system is to be opened, it is connected to a reclaimer. Thus, when a refrigerant leak is detected, the refrigerant is reclaimed through the reclaimer, and then the unit is pumped down to evacuate any air left in the system. When the repairs are complete, the unit is recharged.

Additional Monitorina Data

143. WCRG's expert witness stated that in order to better assess the impact of the proposed project on the air quality, the following information would be needed:

a. A year's worth of monitoring data to determine ambient levels of particulates and oxides of nitrogen at the proposed warehouse site or the Intersection.

b. Diesel exhaust emission levels for tractors and reefers for all of The Applicant's activities in the Brattleboro area as demonstrated by testing of the ones actually used.

c. Information on the dispersion of particulates and oxides of nitrogen in the area, using a model that incorporates Brattleboro's unique topography and meteorology.

Dust

144. Dust will be controlled during construction as needed by the application of water or.calcium chloride or both. Following construction, the use of permanent landscaping and appropriate materials such as concrete and asphalt pavement in the parking lots, together with regular sweeping, will adequately control dust.

Noise

145. Construction is planned to occur 24 hours a day, seven days a week until the project is completed. Noise will be controlled during construction through the use of factory-installed (or equivalent) mufflers on all motorized equipment. No blasting is anticipated. The project is located in an industrial park, in an area of primarily commercial uses. There are no nearby residential areas which will be affected.

146. The project will generate noise from automobile traffic, truck traffic, and refrigeration compressors located on truck trailers. Approximately 80 reefers will be operating on the site during any given period, 24 hours a day.

147. The noise level of the project will be approximately 57 decibels (dBA) at the property line.

148. The Town of Brattleboro has adopted an ordinance which limits noise to no more than 70 DBA at the property line.

149. All trucks must meet noise standards promulgated by the federal government. Federal regulations require the manufacture of trucks that generate no more than 80 dBA at 50 feet when travelling from O-35 mph. Federal regulations limits interstate carriers, which include the Applicant, to the generation of no more than 90 dBA at speeds over35 mph at 50 feet when travelling under load. Since all of the trucks on contract to the Applicant have been purchased since 1992, they meet those standards.

150. The nearest residential area to the project is south of the West River on U.S. Route 30. Noise transmissions in this direction will be minimized by the construction of an on-site noise fence and berm. The Applicant estimates, based upon modeling, that additional noise at the Hathaway residence, the closest residence to the project, and at the DeCicco property adjoining the north boundary of the project, caused by diesel tractors and reefer units will be less than 2 dBA during the average and nighttime periods.

151. Any change in noise of less than 3 dBA is generally considered imperceptible.

152. In estimating noise from the project, the Applicant assumed the construction of an earthen berm, as specified on the site plan; the construction of a 12-foot high solid wall between the main trailer parking area and the West River to reduce noise levels from the warehouse at the residences along the river by over 5 dBA; and the replacement of the louder Thermal King reefer units with quieter Carrier reefer units within five years, which the Applicant plans to do.

IV. CONCLUSIONS OF LAW

A. Criterion 5(Traffic)

Criterion 5 of 10 V.S.A. § 6086(a) requires the Board to find that the proposed project will not cause unreasonable congestion or unsafe conditions with respect to the use of highways. The burden of proof is on any party opposing the project. 10 V.S.A. § 6088(b). The burden of producing sufficient evidence on which the Board can make positive findings is on the Applicant. Re: Xillinaton, Ltd. and International Paoer Realtv Coro., #1R0584-EB-1, Findings of Fact, Conclusions of Law, and Order (Part III) at 20-21

(Sept. 21, 1990); Re: Pratt's Propane, #3R0486-EB, Findings of Fact and Conclusions of Law at 4-6 (Jan. 27, 1987). The Board may not deny a permit pursuant to Criterion 5, but may impose permit conditions to alleviate impacts created by a proposed project. 10 V.S.A. § 6087(b).

The primary area of concern with respect to traffic congestion and safety is Putney Road from the area of the proposed project at Technology Drive to the Intersection of Putney Road/Route 9/I-91. This section of road contains many retail and service businesses, including several fast food restaurants.- There are -a total of 13 unsignalized curb cuts along 'this strip of Putney Road. The Intersection has been listed by the Vermont Agency of Transportation as a high accident location.

Putney Road is used both for commuting into Brattleboro from the north and for business, shopping, and recreation purposes. At certain times of the day, particularly between 8:00 and 9:00 a.m., and 12:00 noon and 6 p.m., traffic levels are high and there is congestion, particularly at the Intersection. Because of the high traffic volumes along Putney Road at certain times, vehicles have difficulty turning into and out of the many access driveways that service the businesses along that strip of highway. The Levels of Service for some side street intersections off Putney Road are currently at E. The Applicant estimates that they will remain at E with or without the proposed project.

Vehicles attempting to exit Interstate 91 at Exit 3 are sometimes backed up onto the interstate due to the congestion at the Intersection during the afternoon peak hour. Based upon the Applicant's traffic counts, the Level of Service at the Intersection during the design hour is currently D for five separate movements, and the Applicant projects that it will remain at D with or without the proposed project.

Most of the Applicant's traffic estimates and projections were based upon traffic counts taken in 1990 and 1991, to which the Applicant applied a growth factor of less than one percent per year. Traffic counts done in 1992 by WCRG and DPC, as well as by VAOT and the Applicant, demonstrate that there has been a 5.1 percent increase in traffic on Putney Road since November 1991.

Because of the increase in traffic on Putney Road that was not taken into account in the Applicant's traffic modeling, the Applicant's estimates of existing traffic are lower than is actually occurring, and it is likely that projections of future traffic are lower than will actually occur. Therefore, the Board cannot rely on the representations made by the Applicant concerning existing and future congestion on Putney Road, including the level of service figures.

Given the evidence of existing congestion on Putney Road, and the growth in traffic that is expected to occur, the Board believes that the project as proposed will cause unreasonable congestion and unsafe conditions on Putney Road between Technology Drive and the Intersection, as well as at the Intersection, during the hours of high traffic volumes. The Applicant estimates that on peak days the project will add 24 tractor-trailer truck trips during the afternoon peak hour on average days and 39 tractor-trailer truck trips during the peak hour on the highest shipment days. This amounts to an average of one tractor-trailer truck every two and one-half minutes on an average day and one tractor-trailer truck every one and a half minutes on the highest shipment days. The Board believes that during times of existing congestion on Putney Road, the addition of these trucks will unreasonably exacerbate the congestion along Putney Road and at the Intersection. The vehicles turning in and- out of the many businesses and numerous curb cuts along this stretch will experience an increase in truck traffic that will make it even more difficult to make the turns, thereby increasing the likelihood that drivers will take unsafe risks to get in and out of the businesses. Furthermore, the tractor-trailer trucks will obstruct the view of drivers of vehicles along Putney road and make it difficult for them to see the vehicles trying to turn into and out of the many side streets and driveways, thereby increasing the likelihood of accidents.

The Applicant has proposed improvements to Putney Road to decrease congestion and increase safety. These include installing a traffic signal at the intersection of Technology Drive and Putney Road; reconfiguring that intersection by creating a wider turning path for vehicles entering Technology Drive from Putney Road southbound; retiming and coordinating the timing of the traffic signals on Putney Road; and organizing its employees' shift schedules at the proposed warehouse so that no shifts will start or finish during the period from 3:00 to 5:30 p.m.

The Board is concerned that, except for the reconfiguration of the Technology Drive and Putney Road intersection, these improvements will not result in the intended reduction in congestion or increase in safety, for the following reasons. First, installation of a traffic signal at the intersection of Technology Drive and Putney Road could result in more rear-end collisions. Second, while the retiming of the traffic light at the Putney Road/Route 9/I-91 Intersection will add more green time for the Interstate 91 exit ramp to alleviate back-ups at Exit 3 during peak hours, it will also cause longer delays for the other movements at that intersection, 'thereby increasing the level of service for other turning'movements. Third, evidence demonstrates that it is likely that the so-called "platoon" effect that the Applicant claims will result in gaps in the traffic to allow left turns into and out of the side streets and driveways on Putney Road will not work as intended. Fourth, congestion on Putney Road occurs throughout the afternoon, from approximately 12:00 noon to 6:00 p.m. It is not likely that the Applicant can organize its employee's shifts to avoid employee vehicles entering or leaving the facility during those hours. Moreover, the Applicant's statement that its employees do not work traditional shifts, but leave when their work is complete, indicates that it may be difficult to control the times that employees leave.

Furthermore, because the Applicant's projections of traffic volumes and levels of service at the various intersections along Putney Road are based upon outdated traffic figures, and traffic growth has steadily increased over the past year, it is likely that the congestion along the road'and the levels of service at the intersections will be greater than projected.

The Applicant argues that the additional traffic from this project amounts to only two percent of the traffic on Putney Road, and is therefore an insignificant increase. The Board does not agree that this increase is insignificant, particularly since this figure includes as many as 39 additional tractor-trailer truck trips during peak traffic volume hours. In an area already experiencing congestion and unsafe conditions at certain hours, an increase of two percent can unreasonably increase the congestion and unacceptably exacerbate unsafe conditions. See Re: Shimon and Malka Shalit, #8B0334-3-EB, Findings of Fact. Conclusions of Law, and Order at 11-12 (Feb. 8, 1991). Given the existing driving conditions on Putney Road, the

addition of up to 39 tractor-trailer trucks trips during peak hours will create unsafe conditions as drivers' ability to see vehicles turning into and out of the numerous side streets and driveways will be made more difficult by the existence of the trucks. Turning in and out of the side streets and driveways will also be more difficult with the addition of a substantial number of tractor-trailer trucks on this section of roadway during peak times. In In re Pilsrim Partnership, 153 Vt. 594 (1990), the Supreme Court ruled that Criterion 5 does not require that a proposed development be the principal cause or original source of traffic problems, and that several causes may contribute to a particular effect or result. Id. at 596. Furthermore, the Intersection has been classified as a high accident location and it is not reasonable to add a substantial number of trucks during peak hours to an intersection already experiencing a high number of accidents.

For the reasons stated above, the Board concludes that the project will create unreasonable congestion and unsafe conditions along Putney Road. Since the Board cannot deny a permit even if a project will create unreasonable congestion and unsafe conditions, but may impose conditions to alleviate the burdens created, the Board will include a condition in the permit that will limit the number of tractor-trailer trucks that may leave the proposed warehouse site during the hours of higher traffic levels on Putney Road: 8:00 to 9:00 a.m., and 12:00 noon to 6:00 p.m. This will reduce the number of trucks from this project that will be added to the road during the hours of highest traffic levels, thereby decreasing the concerns about safety as well as congestion.

B. Criterion 9(K) (Public investments)

Criterion 9(K) of 10 V.S.A. § 6086(a) requires that before granting a permit, the Board must find that a project adjacent to public facilities, services, and lands,

> including, but not limited to, highways, airports, waste disposal facilities, office and maintenance buildings, fire and police stations, universities, schools, hospitals, prisons, jails, electric generating and transmission facilities, oil and gas pipe lines, parks, hiking trails and forest and game lands, ... will not unnecessarily or unreasonably endanger the public or quasi-public investment in the facility, service, or lands, or

materially jeopardize or interfere with the function, efficiency, or safety of, or the public's use or enjoyment of or access to the facility, service, or lands.

Putney Road is a public facility within the meaning of Criterion 9(K). The Board believes that for the reasons stated above with respect to congestion and safety under Criterion 5, the project will materially interfere with the function, efficiency, and safety of, and the public's use and enjoyment of, and access to, Putney Road. As described above, the increase in the trucks from this project on Putney Road will materially interfere with the public's ability to use Putney Road during certain hours for commuting, shopping, eating, and recreation. The Board is also concerned that the addition of a substantial number of trucks will be in contradiction to the Town of Brattleboro's plans to increase the public's enjoyment of the area by adding bicycle lanes and pedestrian walkways to encourage shoppers and beautify the area. Thus the Board concludes that, as proposed, the project will not comply with Criterion 9(K) with respect to Putney Road.

The Board believes, however, that with a permit condition that will limit the number of tractor-trailer trucks that may be added to the Intersection and to the stretch of Putney Road between the Intersection and Technology Drive during the hours of high traffic volumes, the concerns about the effect on Putney Road will be greatly reduced.

The Board also considers Route"9 west of Brattleboro as a public facility within the meaning of Criterion 9(K). Black's Law Dictionary defines "adjacent" as "lying near or close to." The Board believes that the word "adjacent" is a relative term that must be considered in the context of the scale of a project. Given the magnitude of the truck traffic from this project and the potential effect on the highway network, the Board believes that the impact of the project on Route 9 west must be considered under Criterion 9(K).

The information provided to the Board by the Applicant about the number of C&S generated trucks that currently use Route 9 west and that will use Route 9 west if the project is built was not definite. The Applicant testified that approximately 120 C&S trucks per day use that road, on average, but does not know how many common carriers use it.

The Applicant also testified that the proposed project will result in 20 additional trucks using Route 9 west, but that those 20 trucks are already using this road.

The Applicant provided no information on the effect of the project's trucks on Route 9 west and the public facilities along it such as the Marlboro School. The Windham Regional Commission testified that it is not concerned about the additional 20 trucks from this project, or the total per day of 120 C&S truck trips, but that at some point the increase in traffic will have adverse impacts on the villages of West Brattleboro and Wilmington, as well as the Marlboro Elementary School.

Accordingly, based upon the Applicant's testimony that 120 truck trips per day are generated by the Applicant's warehouses, and the lack of evidence on the effect of the project on Route 9 west or on public investments on that road, the Board will impose a condition that limits the number of truck trips from C&S on Route 9 west to 120 per day. In order to be able to determine whether this limit is adhered to, the Board will also impose a condition that all C&S trailers must be marked with the company's logo and individual identifying numbers.

Based upon the Applicant's representations and the permit conditions, the Board concludes that the project complies with Criterion 9(K).

C. Criterion 1(Air)

Criterion 1 of 10 V.S.A. § 6086(a) requires the Board to find that the proposed warehouse facility will not result in undue air pollution. The Applicant has the burden of proving that the project will not cause undue air pollution. 10 V.S.A. § 6088(a). The standard of proof is by a preponderance of the evidence. In re Muzzy 141 Vt. 463, 472-3 (1982). That is, the Applicant must prove that it is more likely than not that the project will not cause undue air pollution.

The Applicant has requested that the Board consider the air pollution control permit issued to the existing C&S facility on Old Ferry Road as a rebuttable presumption that the proposed project complies with Criterion 1(air), pursuant to Environmental Board Rule 19, which states in pertinent part:

(E) Permits creating presumptions. In the event a subdivision or development is also subject to standards of or requires one or more permits from another state agency, such permits or certifications of compliance or letter that no permit is necessary, when entered in the record pursuant to Rule 17(B), will create the following presumptions:

• • •

(2) That no undue air pollution will result:

(a) Air pollution control permit - Agency of Natural Resources, under 10 V.S.A. Chapter 23 and regulations promulgated thereunder.

Rule 19 authorizes submission of a permit for a project as a rebuttable presumption for that vroiect, not for another project. Thus the Board cannot accept the air pollution control permit for the existing C&S facility as a rebuttable presumption of compliance with Criterion 1(air) for the proposed project.

A great deal of evidence on the potential health effects of diesel emissions from the trucks and idling refrigeration units was presented to the Board. There is little or no disagreement among the parties that diesel soot emissions have adverse health effects at some level of exposure. The parties did not agree on what that level is. The Applicant cited studies and federal and state standards to demonstrate that the level of emissions- to be generated by this project are well below any level of concern. WCRG and DPC cited studies and the guidelines of the World Health Organization to demonstrate that there is cause for concern about potential adverse health effects from the diesel emissions from this project. They believe that too little is known about background ambient air levels to be confident that the additional pollutants from this project will not create air pollution that is undue.

Based upon the evidence and conditions imposed by both the District Commission and the Board, the Board concludes that it is more likely than not that the project will not cause undue air pollution. It is clear that it will produce some air pollution, since diesel emissions contain pollutants and there will be diesel emissions from the additional trucks on the highway and the idling reefers

parked at the project. The Board believes, however, that the air pollution from this project will not be undue. Although there are no applicable permit requirements, the Applicant conducted evaluations to determine whether the diesel emissions at the project site will comply with state and federal standards applicable to stationary sources. These standards establish ambient air concentration levels for various time periods which, if met, will protect against adverse health effects both for the general population and for unusually sensitive individuals.

The Applicant found that the level of pollutants from the diesel trucks will violate no state orfederal standards for the various constituents of diesel exhaust, including carbon monoxide, oxides of nitrogen, benzo-a-pyrene, formaldehyde, and particulates. The Applicant's estimates for various pollutant levels were largely based on air pollution modeling. Many of the assumptions made were for potential "worst case," so that even if some of the assumptions were in error, it is likely that there will be no violations of standards.

The Applicant also performed cancer health risk assessments of aldehydes and benzo-a-pyrene. The results show that the increased risk of cancer for each of these two emissions, given a lifetime of exposure at the worst-case location, is less than one in a million.

The Applicant's contract carriers have recently purchased a new fleet of trucks that meet the latest EPA standards. With the stricter standards on diesel exhaust emissions imposed by the U.S. EPA going into effect over the next few years, the common carrier trucks will also be replaced with improved engines. The ambient air in the vicinity of the project should therefore improve, as long as the number of additional vehicles is not so great that it counteracts the effect of stricter emission controls.

Although we are persuaded by a preponderance of the evidence that this project will not cause undue air pollution, evidence of potential adverse health effects from diesel emissions raises concerns about the effect of additional diesel trucks both on the highway and idling at the warehouse facility. We agree with WCRG and DPC that there are deficiencies in the knowledge of existing background levels of CO, NOx, and particulates in the vicinity of the project. Information about the frequency Of air inversions in the Brattleboro area was completely

lacking, and the only available information about air quality in the vicinity of the project during air inversions was based upon models of questionable applicability. We also question the necessity of the long idling time for the refrigeration units in the parking lot.

We believe that further air monitoring will provide better information on background levels of CO, NOx, and particulates. Such information will be important when evaluating the effect on air quality of the additional trucks and refrigerated units from this project. To ensure that air quality standards are not exceeded, we will also require a year's worth of monitoring after the project operations have commenced.

Accordingly, we will leave in place the conditions in the District Commission's permit that require further monitoring of certain constituents of diesel exhaust. Similarly, we will leave in place conditions that require the submission of annual reports regarding the phasing out of the use of harmful CFCs, and the development of an operational plan to reduce truck idling.

We will also leave in place the District Commission's condition that retains Commission jurisdiction over air pollution to ensure compliance with permit conditions and representations made in the application, and to evaluate additional air pollution information required by the Commission's permit and this amendment, as well as to modify permit conditions if necessary to ensure that no undue air pollution occurs.

The Board also concludes that the project will not create undue air pollution with respect to dust and noise. This conclusion is based upon the Applicant's representation that dust will be controlled and that noise from the project at the property line will not exceed 57 dBA. The condition in the District Commission's permit to require confirmation of the decibel levels after the project is fully operational will remain in place.

V. ORDER

Land Use Permit Amendment #2W0434-8-EB is hereby issued. Jurisdiction is returned to the District #2 Environmental Commission.

Dated at Montpelier, Vermont this 2nd day of June, 1993.

ENVIRONMENTAL BOARD

Elizabeth Courtney, Chair
Ferdinand Bongartz
Terry Ehrich
Lixi Fortna
Arthur Gibb
Samuel Lloyd
William Martinez
Steve E. Wright

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